	Liver Flukes	Lung Flukes	Intestinal Flukes	Blood Flukes (Shistosomes)		
Parasite	**F A S C I O L A "gigantica-hepatica"**	**Paragoni M us wester M ani**	**HeteroPHyes heteroPHyes**	**S.haemaToBium**	**S.ManSoni**	**S.japonicum**
Disease	Fascioliasis (Liver rot - تسوس أو نخر الكبد -)	Paragonimiasis	Heterophyasis	Urinary belharziasis (UB)	Intestinal belharziasis (IB)	
Host – Definitive	Man (Bile duct)	Man & crab eating mammals.	Man	Man	Man	Man, dog, cat & pig.
Host – Reservoir	Herbivorous animals	Cat, dog & monkey	Fish-eating animals	-----	Monkey and mice	Domestic animals
Habitat	**Bile duct** of man (DH) Herbivorous animals (RH)	Cystic cavities in the **lung**	**Small intestine (villi)** of man (DH). Fish-eating animals (RH).	**Pelvic** & **Vesical** venous plexus	Smaller branches of **Inf**. Mesentric Vein	Smaller branches of the **Sup**. Mesentric Vein
Diagnostic stage – is	**Immature** egg in feces		**Mature** eggs in faeces. (brackish water)	**Mature** egg in urine.	**Mature** egg in feces.	
Morphology – Size	140 x 70 u	90 x 50 u	30 x 15 u	140 x 60 u	150 x 60 u	Smaller.
Morphology – Shape	Oval , operculated & **thin** shelled	Oval, operculated & **thick** shelled	Oval, operculated with **a knob** at the post. end	**Terminal** spine	**Lateral (Subterminal)** spine	Rounded, spineless but with a tubercle-like projection on the lat. Side.
Morphology – Color	Yellowish brown	Brown	Yellowish brown	Translucent		
Morphology – Content	Immature ovum	Immature ovum	Mature miracidium	Meracidium		
1st I.H (snails)	Lymnea Cailliaudi	semisulcospira	Pirenella conica	Bulinus Truncatus	BioMphalaria Alexandrina	Onchomelania hupensis.
Larval stage	Sporosyct > Radia > Cercaria			Sporocyst > Cercaria (**No radial stage**)		
Cercaria	Lepto-cercous cercaria.	Micro-cercous cercaria. (oval body"short knob like tail")	LoPHo-cercous cercaria.	Furcocercous cercaria		
2nd I.H (transport host)	-----	Fresh-water crabs.	Mugil (Boury) & Tilapia (Bolty)	-----		
Larval stage		Encysted metacercaria				
Infective stage	Encysted metacercaria (EMC) (On aquatic vegetation or in water).	Encysted metacercaria (EMC) (In crabs or crayfish or shrimps).	Encysted metacercaria (EMC) (in muscles or on scales)	Furcocercous cercaria		
Mode of infection	Ingestion of raw **vegetables** or **water** Containing encysted metacercaria.	Ingestion of undercooked **crabs** or **crayfish** Containing encysted metacercaria.	Ingestion of **raw**, **undercooked** or **undersalted fish "Feseekh"** containing encysted metacercaria	**1. Skin** penetration by Furcocercous cercaria during swimming. **2. Mucosa** penetration above gastric acidity during drinking water: *Penetration is done by the action of: - **Proteolytic enzymes** released from the penetration glands. - **Surface tension** of the drying water. - The **Tail lashing movement.**		

	Fasciola	Paragonimus westermani	Heterophyes heterophyes
Pathogenesis	**1. Migration** of immature stages through the liver → mechanical **destruction** of liver tissue → inflammation, necrosis & **fibrosis**. Minute **abscesses** may occur in the parenchyma. 2. Flukes that migrate out of the intestine may from **ectopic lesions.** **3. Inflammation** of **bile ducts**.		**1. Irritation** of the intestinal **mucosa** → chronic intermittent mucous **diarrhea** With **colic** pain and abdominal discomfort. 2. If the **worms penetrate** the intestinal wall, **eggs** may be discharged into → The lymphatic or venules → set up **Granulomatous lesions** in different parts of the body as the heart and the brain. 3. **Eosinophilia**.
Clinical picture	1. Cholangitis, cholecystitis & obstructive jaundice. 2. Enlarged tender liver & RT upper quadrant pain. 3. Fever, headache, Anaemia and high eosinophilia. 4. Self-cure may occur as a result of inflammation and calcificaiton.	**1. Inflammatory reaction** → fever. **2. Cough** & **Hemoptysis**. **3. Chest pain**.	
Diagnosis	1. Clinical picture: fever, ↑↑ eosinophilia	1. =	
	2. Detection of **characterstic eggs** in feces.	2. = + sputum.	2. =.
	3. Intradermal **(ID)** test	3. =	
	4. Serologic Tests: IHA & ELISA (in prepatent & chronic infection)	4. = + CFT.	
	5. Ultrasonography and CT: Visualize **adult** worms in the liver.	5. = + x-ray: Show ring-shadowed opacity.	
Treatment – Drug / Dose	**Parziquantil**: 25 mg/kg: 3 doses for 1D **Triclabendazole**: 10 mg/kg: 2 doses for 1D Dichlorophenol: 50 mg/kg: 15 doses every other D	Dichlorophenol: 50 mg/kg: 15 days every other D Praziquantel: 25 mg/kg: 3 times daily for 2D	Praziquantel: 25 mg/kg: twice daily For 2 days.
Prevention & Control:	1.Snail control (1st IH) 2. TTT of infected animals (2nd IH). 3. Proper washing of : water plants using: Vinegar or potassium permanganate. 4. Safe water supply.	1.Snail control (1st IH) 2. Proper cooking of: Crabs & crayfish. 3. Health education.	1.Snail control (1st IH) 2. TTT of fishermen. 3. Proper salting or cooking of: fish. 4. Avoiding pollution of brackish water.

Blood Flukes (Shistosomes) – Pathogenesis & Clinical picture

1. The stage of invasion (20-30 days):

- The period between exposures to cercariae till egg deposition.
- There is inflammatory reaction in the skin, lung and liver due to metabolites of worms.

A. Skin: local dermatitis and papular eruption. **B. Urtecaria.** **C. Fever** and **eosinophilia.**
D. Lung: verminous pneumonitis, cough& haemoptysis. **E. Liver**: enlaged and tender.

2. The stage of egg deposition & extrusion (Acute stage):

Between egg deposition and their appearance in urine or feces. There is trauma and hge as eggs pass from venules.

S.haematobium	S.mansoni
A. Terminal (endemic) **hematuria.** B. **Dysuria.** C. **Frequency** of **micturition.**	**A. Abdominal pain.** B. **Dysentery.** C. **Fistula.**

3. The stage of tissue reaction (Chronic stage):

The presences of eggs in tissues stimulate a tissue reaction → "granulomatous lesions".

S.haematobium	S.mansoni
A. Bladder **fibrosis** and calcification. **B. Stone formation** due to deposition of oxalate & uric acid crystals around the eggs & blood clots. **C. Stricture** of the **ureter** > hydro-ureter > secondary infection > renal failure. **D. Cancer** bladder.	**A. Thickening** & **fibrosis** of the **colon.** **B.** Intestinal **polyps**, weight loss& anemia. **D. Hepatosplenomegaly** > **periportal fibrosis** > **portal hypertension** > **Ascites** and **esophageal varices** > **hematemesis** > **liver failure.** Nooooooooo.

(Katayama fever)

- Immunological reaction against:
  * Heavy infection with schistosomes.
  * The great number of eggs.
- **Duration**: several days or weeks.
- **Frequency**: japonicum > mansoni > haematobium.
- **Clinical picture:** It takes the form of an acute illness with fever, eosinophilia, muscular and abdominal pain, urticaria followed by dysentery.

Diagnosis

I. Clinical picture: Anemia & high eosinophilia…etc.

II. Laboratory: **1.Direct method:** detection of the eggs* in urine(urinary) or feces(intestinal) by **A. sedemintation method** + in (intestinal):
B. Kato thick fecal smear: Direct smear using cellophane paper soaked in glycerine & malachite green.
C.Khalil's method: material got on a gloved finger after massaging the rectal mucosa is emulsified with salt solution on a slide &examined.
2. Indirect serological methods: (in late chronic cases) ID* , IHAT , ELISA, IFAT* , Circumoval precipitation test (COPT)*,
- Cercaria-Hullen reaction (CHR)*. - Detection of adult shistosomes Ag in serum or urine (Active infection).
3. Cystoscopy (UB), colonoscopy (IB) & sigmoidoscopy : eggs from biopsy from lesion. **4. X-ray & ultrasonography.**

Treatment

Praziquantel	Metrifonate	Niridazole	Praziquantel	Oxamniquine	
40 mg/kg: single dose	10 mg/kg: 3 doses every other week	25 mg/kg: daily for 5 days	-------	20 mg/kg: single dose for 3 days	

Prevention & Control

1. ↓ sources of infection by: A. Detection and **TTT** of infected persons. B. Health **education.**
2. Protection of water from contamination with infectious urine or feces.
3. Protection of persons from cercaria infested water by: A. Wearing **boots** and **gloves.** **B. Drying** the wet part of the body **immediately after swimming.**
4. Snail control: **A. Physical method:** - **Clearance** of canals from **weed** and vegetation to deprive snails of food - **Double canal** system.
- Lining banks of canals with **concrete.** - **Palm leaves traps** for collecting the snails. - Filling of canals passing inside village.
B. Biological method: - Introduction of **natural enemy** to eat the snails (ducks).
- Plantation of some **plants toxic** to snails. e.g. Balanites aegyptiaca
C. Chemical method: (Molluscicides

- Copper sulfate (10-20 PPM).	- Na pentachlorophenate: (5-10 PPM).	- Bayluscide: (2 PPM).
	Kills the **snail** only.	Kills the **snail**, **miracidium** & **cercaria.**

* فريق العمل " مرتب أبجدياً " :- (بلال سيد بلال - عبد الحليم السعيد البنا - محمد أحمد الهندى - محمد أحمد جابر حميدو - محمد السيد على حنفى - محمد عبد الناصر - محمود شاهين - ياسر عبد المقصود الزينى) نسألكم من خالص دعائكم ،،

Habitat of all: Small intestine (Adult) (-asis) → D.H

- Parasite:	1.Diphyllobothrium latum=broad	2.Taenia solium	3.Taenia saginata	4.hymenolepis NaNa	5. hymenolepis diminuta	6. Dipylidium caninum
- Disease :	Diphyllobothriasis "***Fish*** *tape worm infection"*	Taeniasis solium "***pork*** *tape worm infection"*	Taeniasis saginata "***beef*** *tape worm infection"*	Hymenolepiasis nana (more in children). "***dwarf*** *tape worm infection"*	Hymenolepiasis diminuta "***Rat*** *tape worm infection"*	Dipylidiasis *"Dog tape worm infection"*
- Host: Definitive:	Man	Man only. (D.H – I.H)	Man only	Man (D.H – I.H).	Rat and mice & Occasionally man.	Dog and cat & Occasionally children.
Reservior:	fish eating animals	----------				
- Diagnostic stage : Morphology – Is:	**Mature segment-rare- *"broader than long"***	***Gravid segment in feces or (disintegrates in intestinal lumen) "longer than broad"***				Gravid segment *"broader than long"*
- testes: ♂	Multiple (In dorsolateral part).					*In feces.*
- ovary: ♀	Bilobed (in posterior part)					
- uterus: ♀	Rosette- shaped convoluted tube (in middle of segment)	7 – 13 lateral branches	15 – 30 lateral branches			
Is:	**immature egg in feces (fresh water)**	Not stained well ***mature eggs*** in feaces	Stained well (Ziehl-neelsen stain)	mature eggs in feces	Mature eggs in feces	egg capsule in feces *"15 – 30 eggs"*
- Size:	medium (50 u)	Medium (40 u)		Medium (45 × 30 u)		
- Shape:	oval, operculated & thin shell	round *"radially striated shell"*		round with 2 polar thickening from each arising: 4 – 8 filaments.		
- Color:	yellowish	yellowish brown		translucent		
-Content:	immature ovum	hexacanth onchosphere (6-hooked embryo).		=		
- 1st I.H :	(crustacean) Cyclops or diaptomus	Pork (pig).	Cattle	Man	Insect *"flea, flour beetle, flour moth"*	Flea larva of dog and cat.
- Larval stages :	Procercoid larva *"elongated, solid with spherical caudal end contain 6 hooks"*	Cysticercous cellulosae → (cysticerc**osis**)	Cysticercous bovis	Cysticercoid larva	Cysticercoid larva *"cercocystic"*	
- 2nd I.H :	Fresh water fish "salmon"	---------- --				
-Larval stage :	Plerocercoid larva	---------- --				
-Infective stage: Morpholog – Is:	Plerocercoid larva	Cysticercous cellulosae	Cysticercous bovis	Eggs - Cysticercoid larva.	Cysticercoid larva *"cercocystic"*	
- size:		10mm	=	&tail-like appendage *"cercocystic cysticercoid"*.		
- shape:	*elongated, solid*	Oval	=	bladder like structure		
- scolex	*an anterior invaginated*	invaginated " 4 suckers with hooks".	= without hooks.	upright position, has 4 suckers and hook		
-Mode of infection:	Ingestion of : undercooked or raw fish Containing: Plerocercoid larva.	Ingestion of undercooked or raw pork containing: (Cysticercous cellulosae).	Ingestion of undercooked beef containing: (Cysticercous bovis).	By ingestion of eggs: *- (indirect) contaminated food or drink,* *- (direct) external autoinfection (hand to mouth).* *- Internal autoinfection can occur in heavy infections.*	By ingestion of infected insect (I.H) flea "accidently".	
- Pathogenesis & C.P :	- Asymptomatic or mild GI symptoms [1, 2, 3, 4, 5, 6]. - Intestinal irritation (nausea, vomiting, diarrhea, abdominal Colic) [1, 2, 3, 4, 6]. - Nervous manifestation (headache, insomnia, convulsions) due to toxin absorption. [1, 2, 3, 4]. - Intestinal obstruction (heavy infection), weight lost [1, 2, 3] - Macrocytic hyper-chromic (pernicious) anemia due to worm toxin (parasite competition with the host for Vitamin B12 [1]. - Appendicitis & cholangitis, migrating segments causes irritation (itching & nervousness) of the anus. [2,3] - Cysticercosis [2] - urticaria (4). - Mucosal ulceration → enteritis. (4) - pruritus (in some individuals) (6)					
- Diagnosis : Stool analysis:	- Blood: anaemia. - Operculated egg in stool.	(perianal cellophane tape swab) - Eggs (Ziehl-neelsen stain) & gravid segment(uterine lateral branches) in stool.		- Eggs in stool.		- Egg capsule & gravid segments in feces.
- Treatment :	- Praziquantel or niclosamide : 10mg/kg single oral dose **- Vit B12**	- Atebrine 1mg (10 tabs) + + Yomesan *"niclosamide"* (saline purge after 1 hour of TTT) **not immediately after TTT ((for fear of internal Auto-infection))→(cysticerc**osis**) due to disintegration of segments**	- Praziquantel single oral dose 10mg/kg + Niclosamide "Yomesan": 4 tabs→ adult (2 gm) →child (1 gm) (chewed in single dose on an empty stomach) --1-2h-->saling purge. (to expel the parasite)	Praziquantel single oral dose 25mg/kg. - TTT repeated after 10 days in case of H.nana infection to avoid auto infection. (due to cysticercoid liberation from villi). - TTT all family at the same time is necessary.		
- prevention & control :	- Treatment of infected patients.		- Health education.	- sanitary disposal of faeces.		
	- R.H must be dewormed. - fish cooking.	- Pork Inspection & cooking.	- beef Cooking or deep freezing. - slaughtered cattle Inspection. - Avoid defecation where cattle graze.	- Avoid contamination of food and drink.	**- Insects** Destruction in store-houses. **- Rats** Killing.	**- House pets** Periodic TTT with antihelmithics. **- House pets** Frequent washing & dusting with insecticides to kill fleas. **- House pets** (Avoid fondling).

(somatic tape worm) Habitat of all : human Tissue (larva) (-osis)→ I.H

- Disease :	7. Sparganosis	8. cysticercosis	9. hydatid cyst	10. coenurosis
- Parasite:	Larval stage of D.mansoni & D.proliferum	Larva of Teania.solium (Cysticercus cellulosae)	Larval stage of - Echinococcus E.granulosus *"unilocular cyst"* | E.multilocularis *"multilocular"* | E.vogeli & E.oligarthrus *"polycystic"*	Larva of Multiceps multiceps *"coenurus cerebralis"*.
- D.H & R.H :	Dogs & cats		dogs and other canines "C.I" | Foxes, wolves& wild cats |	Dog.
- Habitat :	Subcutaneous tissue, muscles, brain, heart & eye		Liver (70%), lung (24%), kidney (3%), bone (2%) & brain (1%).	Brain & spinal cord
- Diagnostic stage :	Larvae of D.mansoni or D.proliferum *"procercoid or plerocercoid larvae"*	Larva of T.solium (Cysticercous cellulosae)	**Hydatid cyst (-Size:** 1-10 cm & **-Shape:** spherical) **<u>* Wall contain: (layers)</u>** - **Fibrous tissue** layer. - External **laminated** layer *"non-cellular"*. - Internal **germinal** layer *"cellular"*. **<u>* Content:</u>** - Individual **scolices.** - **Broad capsule** *"germinal layer containing "scolices"*. - **Daughter cyst** *"2 layers of mother cyst"*. - **Hydatid fluid.** - **Hydatid sand** "above *contents fall in hydatid fluid"*. **** classification of hydatid cyst **** **According to Shape** A. uni-locular. B. multi-locular: growth (peripherally). Degeneration (centrally). C. Polycystic. **According to Development** A. endogenous. B. exogenous. C. metastatic. **According to Fertility** A. Fertile. B. sterile: due to calcification or 2ry bacterial infection of "germinal layer". **According to scolices & daughter cysts production** A. cephalo-cystic: brood capsule able. B. acephalo-cystic: brood capsule unable.	Larva of Multiceps multiceps *"coenurus cerebralis:* **<u>- Size:</u>** small **<u>- color:</u>** transparent **<u>- Content:</u>** fluid containing scolex. ** The germinal layer is incapable of regeneration as in hydatid cyst.
- 1st I.H :	Cyclops	Man & pigs	Man & herbivorous animals *"sheep, goat& rabbit"* | *Man (poor I.H) & wild rodents*	Man$^{(rare)}$ & herbivorous animals *"sheep, goat & rabbit"*.
- Larval stages :	Procercoid larva	Cysticercous cellulosae	Hydatid larva of E. species	coenurus cerebralis.
- 2nd I.H :	Snakes & frogs – occasionally man.	------------------------		
-Larval stage :	Plerocercoid larva	------------------------		
-Infective stage :	Procercoid larva Plerocercoid larva	Eggs of T. solium. ^^ I.P = 2 monthes after infection → symptoms ^^	Eggs of E. species in feces *"like Taenia egg"*	Eggs of M.multiceps in feces of dog (D.H).
-Mode of infection:	- Accidental ingestion of **Cyclops**.(procercoid). - Ingestion of undercooked **fish** -2nd I.H- (plerocercoid). - Using fish flesh as **poultice** to wounds (eye).	- Accidental ingestion of **eggs** (heteroinfection). - External autoinfection *"hand to mouth infection"*. - Internal autoinfection *"by antiperistalsis"*	- Infected dog feces pollute water or vegetable (Ingestion). - infected dog hair contaminated by eggs. (Handling).	
- Pathogenesis & C.P :	**<u>- Skin:</u>** inflammatory painful **swelling**. **<u>- Subcutaneous tissue:</u>** local inflammation **necrosis** *"caused by degenerated larvae"* **<u>- Eye:</u>** Periorbital **oedema** & painful oedematous **conjunctivitis** with **lacrimation** & **ptosis**. **<u>- General:</u>** urticarial, fever & eosinophilia.	- Mild cases are **<u>asymptomatic.</u>** **<u>- Subcutaneous tissue:</u>** foreign body inflammatory reaction → fibrosis & calcification. **<u>- Eye:</u>**intra-orbital **pain**, **flashes** of light & **loss** of vision. **<u>- General:</u>** as + slight muscular pain *"during invasion"*. **<u>- C.N.S:</u>** ↑ intracranial tension *"epilepsy, headache, vomiting, papilledema & loss of vision"*.	**<u>- Small cysts:</u>** causes no symptoms **<u>- Large cysts:</u>** according to the site: (pressure necrosis of surrounding tissue). **<u>* Hepatic:</u>** intermittent jaundice & fever. **<u>* Pulmonary:</u>** Cough hemoptysis & chest pain. **<u>* Brain:</u>** serious damage as epilepsy. **<u>* Renal:</u>** intermittent pain & hematuria. **<u>* Osseous:</u>** erosion of large area of bone & spontaneous fracture. **<u>- Dead cysts:</u>** allergic reactions "*absorption of hydatid fluid"* **<u>- Ruptured cysts:</u>** (anaphylactic shock) & dissemination of the germinal layer → new cysts formation.	**<u>- C.N.S.:</u>** headache, convulsions & epilepsy. *"space occupying lesions symptoms"*
- Diagnosis :	Finding larvae in the lesion.	**<u>- C.P:</u>** in endemic areas **<u>- Biopsy:</u>** of palpable **subcutaneous** cysts. **<u>- Radiological:</u>** *X-ray of muscle or brain (calcified cysts), *ultrasound, C.T. & MRI (calcified& uncalcified cysts) **<u>- Blood:</u>** eosinophilia. **<u>- Serology:</u>** IHA, ELISA also IDT is used.	**<u>- C.P:</u>** dragging pain or slowly growing cystic tumor. **<u>- Radiological:</u>** *X-ray (calcified or pulmonary cysts), *ultrasound, C.T. & MRI (calcified& uncalcified cysts) **<u>- Blood:</u>** eosinophilia. **<u>- Serological:</u>** IHA & ELISA- IDT ***<u>"Casoni test"</u>*:** 0.2 ml of sterile hydatid fluid ID → wheal in about 15min surrounded by erythramatous zone *"highly sensitive and low specificity- cross reacts with other larvea"*. **<u>- PCR</u>** **<u>- Exploratory aspiration:</u>** puncturing the cyst preceded by formalin injection to avoid anaphylactic reaction. **<u>- Sputum examination:</u>** finding hydatid fragments from ruptured cysts.	Surgical recovery of the larva
- Treatment :	Surgical removal of larvae			
	Praziquantel: 3 doses - 40mg/kg- over 2 weeks. - if surgical removal is immposible.	1. Albendazole: 15mg/kg for 8 day. 2. Praziquantel: 50mg/kg for 15 days. 3.V.D & ca^{+2} --help--> calcification.	**<u>- Surgical:</u>** *PAIR* ***"percutaneous aspiration injection and re-aspiration"*** injection of hypertonic saline or other scolicides & re-aspiration. Cyst puncture is done under sonographic guidance. **<u>- Medical:</u>** Praziquantel 40mg/kg for 15days. Albendazole: 400mg/kg for 2 weeks repeated every 2weeks for 12 cycles.	No medical treatment
- prevention & control	- Treatment of infected patients.		- Health education.	
	<u>- water</u> Boiling & filtering in endemic areas. **<u>- Suspected flesh</u>**: (I.H) Thorough cooking. - Avoid using of flesh: (I.H) as **<u>poultice.</u>**	- **<u>vegetables</u>** Proper washing. - Pure **<u>water supply</u>**. - **<u>Personal</u>** hygiene & **<u>environmental</u>** sanitation.	- Dogs & other carriers Deworming. - Dogs fondling Avoidance. - Dog faeces (Protection of water supplies from contamination). - Dogs stray should be destroyed. - Hydatid cyst found in slaughtered animals should be removed.	

- Parasite:	**1. Ascaris lumbricoides** **(<u>giant</u> intestinal round worm) تعبان البطن**	**2. Trichuris Trichiura** **(Whip worm)**	**3.Ancylostoma duodenale** **(old world Hook worm)**	**4.tichastrongylus colubriformis**	**5. strongyloides stercoralis** [P.63)(3] **(Dwarf thread worm)**	**6. Enterobious vermicularis** **(oxyuris , pinworm, seatworm)**
- Disease :	Ascariasis , ascaris infection	Trichuriasis	Anclystomiasis		Strngyloidiasis	Enterobiasis , Oxyuriasis
- D.H & R.H :	Man only	Man only	Man only	Sheep & goats accidently man.	Free living or prasitic	Man only
- Habitat :	Small intestine (lumen).	Caecum & appendix deeply embedded in mucosa ****ant portion piercing the mucosa while, the post portion projecting out****	S.I - attached to mucosa by: their cutting teeth -	Upper part of small intestine.	Duodenum & U.S. intestine embedded in mucosa deeply ♀ (after fertilization)	Caecum & adjacent parts of intestine.
Diagnostic stage : **Is:	**Immature Eggs in the feces (I.P = 2 m)** **(200,000 eggs/♀/day)**	**Immature Eggs in the feces** **(unconstant number-1000→3000)**	**Immature Eggs in the feces** **(20,000 eggs/♀/day)**	**Immature Eggs in the feces**	**Rhabditiform larva in feces or sputum**	**mature Eggs in perianal area or feces**
- size:	Medium (60X45 u).	Medium (50X25 u).	Medium(60X40 u)	Medium (80X40 u)	**- length:** 0.25 mm.	Medium (50X20 u).
- shape:	Oval with thick mamillated shell. (types of eggs [P.48])	Barrel, thick shell, W 2 mucoid polar plugs.	Oval , thin shell	Oval, thin shelled W One pole Pointed &The other is broad.	**- Esophagus:** Rhabditiform. **- Tail end:** Blunt.	plano-convex has 2 layers &covered with adhesive layer.
- color:	Yellowish brown.	Brownish.	Translucent	Translucent		Translucent.
- content	Immature ovum.	Immature content.	Immature ovum <u>W</u> 4 - cell stage.	Immature content (16-32 morula stage)		**<u>Mature content (larva)</u>**
****Others:**	**Adults (stool) & larvae (sputum).**	------------------------	------------------------	------------------------	------------------------	------------------------
- External environment (soil): "favourable condition" (25°C – moister - shade - oxygen)	Shady & damp soil. Immature eggs→ mature eggs contain: rhabditiform larva.	Moist soil **(more shade & moister)** Immature eggs → mature eggs.	Moist, warm& in shade soil. Immature eggs→mature eggs → hatch→rhabditiform larva (non- infective)→ filariform larva.		1.Unfavourable cond. :- (in man-parasitic-) Rhabditiform larva→Flariform larva. 2.Favourable cond. :- (in soil-free living-) Rhabditiform larva → free living Adults →eggs→Rhabditiform larva again.	Eggs are mature & infective from the beginning (No external environment)
-Infective stage :	Mature eggs contain rhabditiform larva	Mature eggs contain infective larva.	Filariform larva (+ve hydro, thermo & histotropism but –ve geotropism)	Filariform larva	Filariform larva 0.5mm length,filariform esophagus & notched tail	Eggs or its larva
-Mode of infection:	Ingestion of water or raw vegetables contaminated by mature eggs.	Ingestion of mature eggs.	Penetration of flariform larva through skin while walking barefooted on the infected soil <u>****Necator Americanus→ as Ancylostoma Duodenale but differs in some morphology****</u>	Ingestion of filariform larva with food or drink.	Penetration of flariform larva through skin while walking barefooted on the infected soil * hyper-infection :- <u>**A. internal autoinfection**</u>: rhabditiform larva in intestine→filariform larva→penetrate mucosa→blood→lung→GIT→adult <u>**B. external autoinfection**</u>: rhabditiform larva at anus→filariform larva→penetrate Perianal skin→blood→lung→GIT→adult.	1.food or water ingestion containing eggs. 2. Inhalation of eggs in dust. 3. ext. autoinfection(hand to mouth) 4. Retro infection: Eggs→perianal skin →hatch→larva→rectum & intestine.
- course in final host:	Small intestine→eggs hatch→ rhabditiform larva→penetrate intestinal wall →heart→ blood→**lungs**→ alveolar spaces→↑larynx→ ↓ alimentary canal→ S.I (adult) **--(migration to lungs)--**	Upper small intestine→ eggs hatch→ ↓ caecum --2-3m--> adult. **---(no migratory phase to lungs)---**	Skin→blood→Rt heart→lungs →moults→alveolar spaces→ ↑larynx →↓ alimentary canal →adults.	= as hook worm but: * Filariform larva→small intestine→adult **---*(no migratory phase to lungs)---**	Skin→blood→lungs→alveolar spaces → ↑ Larynx→↓ alimentary canal→ adults→eggs in the mucosa→hatch imm. → rhabditiform larva→lumen→stool. (During circulation larva →adult (lung)	Eggs→duodenum→hatch →larva→adult→fertilization →♂ dies &♀ to rectum→night→pass out of anus→eggs on perianal skin→irritation & itching. **(no migratory phase to lungs)**
- Pathogenesis & C.P :	<u>**1. MIGRATION STAGE:-**</u> <u>**A. Loffler's syndrome**</u>→pneumonitis (<u>D</u>ry cough - <u>D</u>yspnea - <u>E</u>osinophilia - long grade <u>F</u>ever) <u>**B. Allergy**</u>→asthma & lip edema. <u>**C. Emboli**</u> to various organs→ Granuloma. <u>**2. INTESTINAL STAGE:-**</u> <u>**A. Abdominal disturbance**</u>:colic, nausea, vomiting, diarrhea &dyspepsia [why?]. <u>**B. Nutritional disturbance**</u>: loss of Weight & vit A deficiency. <u>**3. COMPLICATIONS:-**</u> Irritation by adults due to drugs / fever→ --------------- <u>obstruction of</u> --------------- <u>A. Bile duct</u> →obstructive jaundice <u>B. Appendix</u> →appendicitis <u>C. pancreatic duct</u> →pancreatitis <u>D. intestine.</u> **E. adults to stomach**→vomiting. **F. adults to trachea**→suffocation. **G. perforation of intestine**→ peritonitis. <u>**4.TOXIC EFFECT:**</u>Hypersensitivity(worm Ag) (Fever, urticarial, asthma & conjunctivitis) <u>**5. Other microorganisms**</u> carried by adults during migration.	<u>**1. MILD INFECTION:-**</u> Asymptomatic <u>**2. HEAVY INFECTION:-**</u> Worms spread throughout the L.I causing:- <u>**A. Pain**</u> in the epigastrium & Rt iliac fossa. <u>**B. Dysentery**</u> (nausea, vomiting &mucus diarrhea). <u>**C. Rectal prolapse**</u> due to rectal edema. <u>**D. Loss of weight.**</u> <u>**E. Anemia**</u> due to suction of blood, bleeding (microcytic hypochromic) Or toxic substance (macrocytic hyperchromic). <u>**F. Appendicitis**</u> due to appendix invasion.	<u>**1.INVASION STAGE:**</u> (Ground itch) Dermatitis & itching due to: skin penetration <u>**2. MIGRATION STAGE:**</u> =as ascaris. <u>**3.INTESTINAL STAGE:-**</u> <u>**A. Hook worm anemia:**</u> due to: Chronic blood loss ,↓iron & toxins. <u>**B. Edema**</u>due to: hypoproteinemia due to: red cell loss <u>**C. G.I.T. manifestation:**</u>(diarrhea , Abdominal discomfort& melena) <u>**D. Physical & mental retardation:**</u> Due to toxin liberation <u>**E. PICA:**</u> habitual ingestion of: Non-food substance including soil.	<u>**1.MILD INFECTION:-**</u> Asymptomatic <u>**2.HEAVY INFECTION:-**</u> Mild anemia due to : blood suction .	<u>**1. INVASION STAGE:**</u> = as Ancylostoma. <u>**2. MIGRATION STAGE:**</u> = as Ancylostoma. <u>**3. INTESTINAL STAGE:**</u> Chronic inflam.(fertilized ♀ in mucosa) → Ulcer, Necrosis& 2ry bact. Infect.→ Peptic ulcer, malabsorp. ,steatorrhoea & mucus diarrhea. <u>**4.cutanous:**</u> - Dermatitis & itching (penetration site). - larva currens (cutaneous larva migrans) - Due to: external autoinfection. - larvae (peri- anal area) --extend to--> Buttocks, thigh & back as (linear eruption). <u>**4. DISSEMINATED STROGYIOIDOSIS :-**</u> In patients with ↓ immunity : (AIDS-corticosteroid.....)→ massive invasion of migrating larva into various organs (liver, heart....etc) <u>**5. HYPER INFECT. SYNDROM:-**</u> Int. Autoinfection due to:- In intestine rhabditiform larva→filariform larva →penetrate mucosa →blood →lung →GIT →adults → severe depletion Or death.	<u>**1.Ulceration**</u> due to: worms attachment: diarrhea& abdominal pain <u>**2.Pruritus ani**</u> : at night due to : ♀ Migration → insomnia & irritability. <u>**3.**</u> worms into appendix →<u>**appendicitis**</u> <u>**4. Enuresis:**</u> irritation of urethra. <u>**5. Vulva & vagina:**</u> local inflammation, irritation& vaginal discharge. <u>**6. Ectopic lesions → (granulomas).**</u>

<table>
<tr><td colspan="2">- Diagnosis :</td>
<td colspan="2"><u>1. C.P:</u> cough & dyspnea →abdominal dist.
<u>2.Detection of:-</u>
- Eggs or adults in stool
- Larva in sputum With blood.
- Charcot leyden crystals (sputum)
<u>3.Radiography(X- ray</u>): after 6h of an apaque meal(worm)→cylindrical filling Defect (scattered molting-larvea-).
<u>4. Eosinophilia:</u> during migration phase.</td>
<td colspan="2"><u>2.Detection of:-</u>
- eggs in the stool by:
Direct smear or floatation method.
<u>2. Proctoscopy:</u>
Worms attached to rectal mucosa.
<u>4.Air-contrast barium enema :</u>
Show linear translucent adults.
<u>3. Blood examination:</u>anemia, eosinophilia.</td>
<td colspan="2"><u>1. C.P.</u>
<u>2.Detection of eggs in stool by :</u>
A. KATOSMEAR , zink sulphate (concentration method):
B. estimation of worms from egg count in stool by:
(stoll egg count method).
$\frac{\text{(eggs no/gm-stool-× daily stool wight)}}{20,000}$
<u>3. Blood:</u> anemia.</td>
<td colspan="2"><u>Detection of eggs in the stool.</u></td>
<td colspan="3">1. -Rabditiform larva in stool
- Adults in culture.
2. Larva in sputum.
3. serology (ELISA&IFAT):
4. Eosinophilia.</td>
<td colspan="2">1. Adult worms in stool & rarely the eggs.
<u>2.swabbing of perianal area by:-</u>
<u>A. N.I.H. swab by :</u>
Cellophane tape.
<u>B. Scotch Adhesive tape swab by:</u>
Adhesive Cellulose tape.</td></tr>
<tr><td rowspan="4">- TTT :</td><td>- Drug :</td>
<td>Albendazole</td><td>Mebendazole</td>
<td>Albendazole</td><td>Mebendazole</td>
<td>Albendazole</td><td>Mebendazole</td>
<td>Thiabendazole</td><td>Mebendazole</td>
<td>Thiabendazole</td><td>Albendazole</td><td>Ivermectin</td>
<td>Albendazole</td><td>Mebendazole</td></tr>
<tr><td rowspan="2">- Dose :</td>
<td rowspan="2">single oral dose 4oomg</td><td rowspan="2">2 daily /3d.
100mg(200mg ↓ 2year)</td>
<td rowspan="2">single oral dose
4oomg(200mg ↓ 2year)</td><td rowspan="2">3 daily /3d.
100mg</td>
<td rowspan="2">single oral dose
4oomg(200.........)</td><td rowspan="2">2 daily /3d.
100mg</td>
<td colspan="2">2 daily /3d.</td>
<td rowspan="2">2 daily /3d.
25mg\kg</td><td rowspan="2">1 daily /3d.
400mg</td><td rowspan="2">1 daily /2d.
200ug\kg</td>
<td rowspan="2">S.O.D.
400mg(200mg ↓ 2year)</td><td rowspan="2">S.O.D.
100mg</td></tr>
<tr><td>25mg\kg</td><td>100mg</td></tr>
<tr><td>- others:</td>
<td colspan="2">Surgical/endoscobic removal of worm in cases of complication.</td>
<td colspan="2"></td>
<td colspan="2">2.Supportive:Fe,protein&vitamins.
- pyrantel pamoate : SOD
10mg/kg</td>
<td colspan="2"></td>
<td colspan="3"></td>
<td colspan="2">White precipitate oint.locally to perianal region at night (kill ovipositing ♀ #itching)</td></tr>
<tr><td colspan="2">- prevention & control :</td>
<td colspan="2">1. <u>Feces</u> Sanitary disposal.
2. Human excreta should not be used as: <u>fertilizer</u> unless treated by chemicals.
3. <u>Vegetables</u> Proper washing.
Running water or (water + iodine).
4. <u>Children</u> Personal clean.
5. <u>Mass treatment.</u></td>
<td colspan="2">AS ASCARIS</td>
<td colspan="2">AS ASCARIS
(-- proper washing of vegetables)
(++ avoid walking barefooted)
- don't forget: Larva migrans (cutaneous & visceral) P.58, 59, 60.</td>
<td colspan="2"></td>
<td colspan="3">(= AS ANCLYSTOMA)</td>
<td colspan="2">1. Drugs should be <u>repeated</u> after 2 weeks to kill any worms that may hatched from eggs.
2. Prevent <u>reinfection</u> by sleeping in cotton clothes & gloves & fingernails should be kept short.
3. Other members of <u>family or school</u> should be treated.</td></tr>
</table>

* فريق العمل " مرتب أبجدياً " :- (بلال سيد بلال - عبد الحليم السعيد البنا - محمد أحمد الهندى - محمد أحمد جابر حميدو - محمد السيد على حنفى - محمد عبد الناصر - محمود شاهين - ياسر عبد المقصود الزينى)

نسألكم من خالص دعائكم ،،

- Parasite:	1.Capillaria Philippinenesis (M.C.Q)	2.Trichinella spiralis	3.Dracunculus medinensis	4.Wuchereria bancrofti	5.Loa loa (African eye worm)	6.Onchocerca volvulus (blinding worm)
- Disease:	**Philippines**	**Trichinosis, Trichiniasis.**	**Dracunculosis**	Elephantiasis,bancroftian filariasis, wuchereriasis	Calabar swelling , loaiasis	River blindness , onchocercosis , onchocerciasis
- D.H & R.H:	Fish eating bird, man.	Man& (Pigs, rats). =====Adult& larvae=====	Man& (Dogs , cattle)	------------------------ MAN only ------------------------		
- Habitat :	Small intestine (embedded in mucosa).	Small intestine.	S.C tissues (man-D.H-) – extremities liable to water (dogs& cattle - R.H-)	Lymphatic glands & vessels (adult)	S.C tissue (free migrating adult)	S.C tissue(coiled in nodules-onchocerca tumor-)
- Diagnostic stage:	Egg in feces. **- Size:** small · **- Color:** Yellow **- Shape:** peanut · **- Content:** Immature	Encysted larva in skeletal muscle.	Larva (comma Shaped , rhabditiform esophagus, rounded anterior end, thin tapering tail)	------------ MICRO FILARIA (in blood) ------------ Has a column of nuclei. Ant. & post. Ends free of nuclei. Loose sheath.	Full of nuclei (tail). Angular curves Tight sheath	Free of nuclei (tail). smooth curves Unsheath
- I.H or vector:	Fresh water fish.	Man & (Pigs, rats). =====Adult& larvae=====	Cyclops.	Mosquitoes(culex,Anopheles)proboscis(**night** biting)	Chrysops (**day** biting)	Simulium (**day** biting black fly)
- Infective stage :	Larva in fish.	Encysted larva in skeletal muscle of pork.	Infected Larva in Cyclops. **I.P = 1 year.**	Filariform larva (slender ,long , filariform oespphagus)		
- Mode of infection :	Eating raw or undercooked infected fish.	Eating raw or undercooked infected pork.	Drinking water containing Infected Cyclops.	Bite of vector& Enterance of Filariform larva through the bite wound or skin penetration.		
- Pathogenesis & C/P:	Chronic inflamm. reaction& villi atrophy → Mal-absorption of fats, sugars, proteins & electrolytes → Abd. Disturbance. (colic , diarrhea & borborygmus) ****many infection are asymptomatic****	**1.Intestinal stage:** **(1^{st} week)** Larva excyst, invades intestinal wall → adult → GIT disturbances(nausea , vomiting & colic) **2.Migration stage:** **(2^{nd} week)** During Migration, deposition & encapsulation in muscles → Fever, eosinophilia, face edema & weakness of affected muscles. - Myocarditis, Encephalitis, resp. symptoms. **3.Encystment stage:** **(3^{rd} week)** severe toxemia, dehydration & cachexia **Death(H.F , pneumonia & Encephalitis) --- calcification of cyst after this stage ---	**1. "ALLERGIC REACTION": ♀ migration to skin →** Due to release of metabolic products. (urticaria, dyspnea, nausea &vomiting) **2. "INFLAMMATORY REACTION":** Due to release of toxic Substances → blister → ruptures →Shallow ulcer → 2ry infection.	**1..Acute INFLAMMATORY stage:** Due to release of toxic products from living/dead adult worms ------1 y after bite------> **A. Lymphangitis:** L.V (hot ,red, swollen& tender)& Accompanied by abscess formation. (orchitis, spermatic cord inflammation) **B. Lymphadenitis**: L.N (enlarged& tender) **C. Filarial fever** with rigor. **2.Chronic OBSTRUCTION stage:** Due to fibrosis of L.V&L.N & presence of the coiled worms inside lymphatic → **A. L.V Distention** →non-pitting edema & varicosity. **B. Rupture of Distended lymphatics** → Serosal cavities, urine & stool (hydrocele......*) **3. ELEPHANTIASIS:** **(Enlargement of legs& genitalia)** Chronic lymph**edema** &repeated **inflammatory** reaction (plasma cell, MQ, eosinophilia) → **hypertrophy** of S.C connective T. & **woody** induration of tissues →thickening &**hardness** of the skin, S.C → cracks& **fissures** →2ry bacterial inf.	**1. INFLAMMATORY REACTION:** Migration of adults → Itching, creeping sensation, Pain, granuloma of conjunctiva &edema of eye lid. **- may pass in front of the eye ball under the conjunctiva.** **2.CALABAR SWELLING:** **(ALLERGIC REACTION)** To the parasite & its products. **- Painful, Pruretis, Non Pitting, Non Parasite& Transient S.C swelling.** **- in any part of body**	**1.Ocular lesion-RIVER BLINDNESS-:** Microfilaria migration→ scalp tumors→ eye →toxins & allergy (living & dead microfilaria)→ EYE → retro-bulbar Neuritis& Optic nerve atrophy → BLINDNESS. **2. ONCHOCERCOMA:** ♂♀ of filarial. **(INFLAMMATORY REACTION)** **Painless, Pruritis, Pigment, Atrophy & fibrosis** **- Firm & Movable S.C nodules.** **- Scalp. Elbow& knee (bony areas).** **3.SKIN LESION** **- Hanging groin :** sac in hip region (enlarged L.N) **- sowda (Hyper or de-pigmentation) :** with itchy papules
- Diagnosis:	1. Egg in stool. 2. Blood: ↓protein, ca^{+2}, k^{+}&cholesterol.	**1. C.P:** Diet history of uncooked pork. **2. Direct Demonstration of larvae:** **A. In blood (migratory stage):** By mixing blood with diluted acetic acid → Centrifugation. **B. In muscle (encystment stage):** by muscle biopsy (trichinoscopy)*P.68* **3. Radiology:** X-rays (calcified cysts). **4. Indirect:** A.**BACHMAN'S TEST** :(I.D test) Immediate hypersensitivity reaction*P.68*. **B. IFAT & ELISA** **C. Xenodiagnoses test** *P.68* **5. Eosinophilia.**	**1. C.P:** worm/larva outline under skin - skin lesions. **2. Direct Demonstration of larvae:** From ulcer after placing cold water. **3. Radiology:** X-rays (calcified worm). **4. Indirect:** **A. Intradermal test.** **B. CFT.** **5. Eosinophilia.**	**1. C.P:** ELEPHANTIASIS **2. Direct Demonstration of microfilaria In blood:** **A. Direct examination: (at night)** **directly** to show mobile sheathed Microfilaria Or **stained by** Geimsa or leishman stain. **B. Knott's technique :(formalin)** centrifugation*. **C. DEC provocation test *:** **- In chylocele** &hydrocele & enlarged L.N. **2. Detection of adult by:** biopsy of L.N& USG. **3. Radiology:** X-rays (calcified worms). **4. Indirect:** **A. Intradermal test,** **B. ELISA & IHA.** **C. Ag in peripheral blood.** **5. Eosinophilia.**	**1. C.P: under conjunctiva.** **2. Direct Demonstration of microfilaria In blood:** in day time **4. Indirect:** **A. Intradermal test,** **B. ELISA.** **5. Eosinophilia.**	**1. C.P:** ONCHOCERCOMA **2. Direct Demonstration of microfilaria& adult:** from nodules By SKIN SNIPS. **3.MAZZOTTI test (dangerous) :** (DEC orally-50mg-)--2-24h--> rash & fever due to: microfilariae death with intense pruritus. **3. Radiology:** USG (nodules in deeper tissues). **4. Indirect:** **A. Intradermal test,** **B. ELISA.** **5. Eosinophilia.**
- TTT: - drug :	Mebendazole Albendazole	Mebendazole thiabendazole	(DEC) Metronidazol thiabendazole	**(DEC) # - microfilaria-** **Ivermectin**	**DiEthylCarbamazine(DEC)**	**DiEthylCarbamazine(DEC)** **Ivermectin**
- dose :	2 daily/20 days 200mg 1 Dialy/10 days 400mg	3 daily/2Weeks 400mg 2 daily/5 days 25mg/kg	3 daily/3 weeks 2 mg/kg 3 daily/10 days 250mg 2 daily/5 days 25mg/kg	**3 daily/3 weeks 2 mg/kg** **1 SOD / 6w /4Y 200-400 ug/kg**	**3 daily/3 weeks 2 mg/kg**	**3 daily/3 weeks 2 mg/kg** **1 SOD /3M/2Y 150 ug/kg**
- supportive :	a. High protein diet. b. Fluid & electrolyte replacement.	- Corticosteroid 40mg --few days--> ↓ then Gradually discontinued.	2. **Surgical TTT (WORM EXTRACTION):** a. Rolling up the worm on a stick slowly. b. Surgical removal. 3. **General measure: Anti-histaminics & Antibiotic.**	**2.Surgical TTT in advanced case.** 3. **General measure: Anti-histaminic &Antibiotic.**	2. **Surgical removal of adults From the eye.**	**Surgical removal of nodules (nodulectomy).** **- On or near the head to ↓ blindness incidence.**
- Prevention& control:	1. **Cases** TTT. 2. Sanitary disposal of **human excreta.** 3. **Health** education.	1. Proper cooking & storage (deep-freeze) pork. 2. Proper breeding of pigs. 3. Inspection of pork in slaughter houses. 4.Eradication of rats from pig farms.	1. Boiling / filtered of Suspected **water.** 2. Destruction of **Cyclops**. 3. Prohibition of washing in wells.	1. Vector control (using larvicides). 2. Personal prophylaxis (mosquito & head net). 3. Mass TTT of patients (DEC- 6mg/kg- 1m/1y).	= = = 4. TTT of carrier. .	= = +(scree, fly-proof clothing& repellents). = 4. Mass nodulectomy (# black fly infection).

Disease:	Cutaneous Leshamniasis (C.L.)					Toxoplasmosis (immuno-compromized patients) [$$ malaria]	Primary Amoebic Meningeo-encephalitis (PAM)	Granulomatous Amoebic Encephalitis. (GAE)
	Old world C.L			New world C.L. complex				
Parasite:	**L. tropica**	**L. major**	**L. aethiopica**	**L. braziliensis**	**L. Mexicana**	**Toxoplasma gondii (opportunistic parasite)**	**Potential pathogenic free living Amoeba**	
							Naegleria fowleri	**Acanthamoeba Species.**
Lesion:	Oriental sore **I.P = 2- 8 months**	Rural, acute, moist lesion tends to ulcerate early.	Diffuse cutaneous lesions	- (Espundia) - Ulcers. - nasal septum erosion الأنف	(Chiclero ulcer / bay sore) (Ear). الأذن	--	--	-- -
Distribution	Mediterranean, Middle east, Asia &Central Africa	Middle east , Asia Africa.	Ethiopia.	Central & south America		Cosmopolitan.	--	
R.H:	Man& dogs.	Rodents	----------------------------------	Rodents & dogs.		**A. D.H&I.H**:(Cats &other felines): S.I epithelium(sexual cycle). **B. I.H**: (Man &other animals): inside R.B.Cs (intracellular).	--	
Vector:	Phlebotomus sand fly			Lutzomyia species.				
Infective Stage	Promastigote.					The mature Infective sporul ated oocyst.	**Amoeboid trophozoite**	**Amoeboid trophozoite**
	Spindle shaped **central** nucleus, anterior **kinetoplast** & free Ant. **flagellum.**						- Rounded form: 15μ - Elongated form: 15-30μ.-Single nucleus.	- Irregular - Spine like
Mode of infection	Infective sand fly bites man& inoculate the promastigotes into skin.					**1. Congenital:** from infected mother. **2. Ingestion of :** **A. oocyst:** food or drink contaminated W infected cat stool. **B. pseudocyst or true cyst:** undercooked meat.	1. Swimming or diving in contaminated fresh & brackish water. 2. Swimming pools &inhalation of contaminated air with cysts.	
Pathogenesis & C.P:	**1.Oriental sore:** - Localized single **nodule**, on face, in urban areas. -- several months --> **2-An ulcer:** raised indurated edges & scanty exudates. **3-2ry bacterial infection**, so parasites in edges of ulcer,not base. -- 1year --> **4-ulcer healing:** leaving **scar**.	- Acute infection. -in the lower limbs (1ry). -Duration: 3-6 months.	**-Diffuse cutaneous lesions** (plaques, papules, multiple nodules) -on **face** & exposed parts of **limbs** - resembling **lepromatous leprosy**) - As a result of: ↓CMI → **Leishmanian test (-ve)**.	- In RECs of oro-nasal mucosa → **ulcers** (mucocutaneous areas). - Nasal septum or laryngeal **erosion** with **edema.** - Tissue **destruction** & 2ry bacterial infection **(ESPUNDIA).** ------------------ - L.peruviana **(dry skin nodule** - as warty growth-)	- On ears of **chicle** plantation workers → marked deformity & destruction of **ear cartilage.** - **Single**, **painless**, → **heals** spontaneously within 6 months.	*** ASYMPTOMATIC: IN MANY CASES.** **1-Congenital toxoplasmosis:**(1st 4 months of pregnancy), the fetus may be infected: **A. Abortion or stillbirth.** **B. C.N.S. manifestation:** Hydro**cephalus**, **M**icro**cephalus**, **C**onvulsions, **C**erebral calcification & **M**ental retardation. **2-Aquired toxoplasmosis:** **A. Acute symptomatic toxoplasmosis:** ***1-Lymphatic form:*** Enlarged L.N & Hepato-splenomegaly& Glandular fever picture. ***2-Cerebrospinal form:*** Meningio-encephalitis (Fever, headache, convulsions * neck rigidity). ***3-Exanthematus form:*** skin rashes w typhys picture. **B. Chronic toxoplasmosis(latent form):** - the **commonest**(No symptoms) - Can develop symptoms if **immunocompromised.**	**(acute fatal disease)** **- Amoeboid trophozoite** → nose → cribriform plate → olfactory nerve → Brain & multiply along brain base. **- noted:** Early invasion of **subarachnoid space** + cerebral invasion of **gray matter.** - Only **Amoeba** seen in **tissues.** (flagellates & cysts → amoebae) Sudden headache, mild fever &blocked nose → **C.N.S. involvement:** (nausea, vomiting, confusion& coma) Taste &smell disturbance, stiff neck & kerning's sign → Death after 4-5 days after onset of symptoms.	**(benign & chronic form)** = but 1ry in lower respiratory tract → Blood → sC.N.S. & no flagellate stage. - Both trophozoite & cycsts **(tissues).** **A.C.N.S. infection:** (chronic infection) (Granulomatous Amoebic Encephalitis) (GAE) **B. Corneal infection:** (Chronic ulcerative keratitis) → *** Amoeba introduced through:** 1. Corneal trauma. 2. Wearing contaminated contact lenses.
Diagnosis	**1. Clinical Picture.** **2-Demonstration of organism:** **A. Aspiration or scraping:** from the active ***edge*** of the ***ulcer*** (**staining with**: Geimsa or leishman). ** **Scraping:** from the ***ulcer surface*** do not reveal the organisms which are destroyed by 2ry bacterial infection** **B. Culture:** on NNN (**N**ovy **M**acneal & **N**icolle) medium. **3-Leshmanian test (montenegero test):** - Ag (from cultured promastigotes) - (+ve) within 3 months of the onset of skin lesion and remains (+ve) for life.					**1.Clinical picture:** 2. Demonstration of the **parasite** from L.Ns & bone marrow. **3. serological tests:** **A. FrenKel** test (toxoplasmin **I.D test**). **B. Sabin-feldman's dye test:** Serum +toxoplasma suspension + methylene blue➔if Ab ➔ The organism won't take the dye. **C. ELISA, IFT, CFT.** **D. Molecular technique (PCR).** **4. Animal inoculation.** **5-X-Ray:** Reveals cerebral calcification. *** Algorithim for sero-diagnosis of toxoplasmosis: *P153***	**1-History of recent swimming.** **2-Spinal Puncture:** - Purulent CSF under ↑ pressure. - ↑ protein level &↓ glucose level. - Motile amoeba may be found & bacteria aren't present.	**- corneal scrapings:** trophozoite & cysts identification.
TTT:	***** Healing without chemotherapy can occur but it requires many months ***** **1-Local TTT:** **A. early non-inflammed or non-ulcerated lesion:** - intra-lesional injection of **prevalent antimony** or **5% mepacrine** 1-3 times at 3-5 days interval. **B. Ulcerated lesion:** **1- Surgical** excision, **curettage** & **heat** application. **2- Topical:** Using 2% chlorpromazine & 2% clotrimazole. **3-Antibiotic** (2ry infection). **2-Systemic TTT:** inflamed or ulcerated lesions, lymphatic spread, multiple lesions or lesions on sites where scaring → Disability or disfigurement. **A. Pentavalent antimony**: **Na gluconate or pentostam** 10mg/Kg (I.M) daily / 10 days. **B. Pentamidine:** 4mg/ Kg (I.M) daily / 15 days. **C. Amphotercine B.**					**- Congenital & Acute** (must be TTT). **- Chronic infection** (No TTT). 1- **pyrimethamine (daraprim)** 25mg/d + **trisulfapyrimidines** 4mg/d/month. 3-**spiramycin:** 3mg/d/ month.	Amphotericin B 1mg/Kg (I.V) 1d /1w weak.	
						Prevention 1- **Meat** (Proper cooking & freezing). 2- **Food** (protection from cat stool). 3- **Pregnant women** (health education). 4- **Cats & meat** (Care in handling).	**1- Swimming:** Avoidance diving in contaminated water. **2- Swimming pool:** chlorination.	

visceral leishmania "leshmaniasis"

- parasite:	L.Donovani	L.infantum	L. chagasi – L. amazonensis
- Distribution:	India- Africa	Mediterranean countries – Africa.	Central & south America.
- age:	(10-25y)	children	↓ Four.
- Disease:	(kala azar =Black sickness / Dum Dum fever)		
- host: -D.H:	Man.		
-R.H:	(Rodents & ***dogs*** "most important R.H")		
vector:	Lutzomyia **sand fly**.		
- Habitat:	**RECs** (inside Reticulo-endothelial cells)		
infective stage	**Promastigotes.**		
- mode of infection:	**(Sand fly)** --bites--> man --injects--> **(promastigotes)** --engulfed by--> **(skin macrophages)** --> **(amastigotes)** "Multiply 1, ↑ No." --> **papule (leishmanioma)**.		
pathogenesis:	1. In **RECs** of (liver , spleen , Bone marrow , L.N, intestine & other organs) --> cells bursting --> **(amastigotes)** liberated --> Other cells invading →**RECs** proliferation→ massive **hypertrophy** --TTT--> normal Size.		
- C.P :	**1.** Intermittent **fever** with double daily rise. **2. Diarrhea** or **Dysentery.** **3. Hepatosplenomegaly** & **L.N** enlargement. **4. Pancytopenia**: (Thrombocytopenia, anemia, leucopenia "monocytosis & lymphocytosis"). **5.PKDL (post kala azar dermal leishmanoid):** - Depigmented Skin nodule. - Due to: affection of macrophage cells of skin. - occurs: late. - As a result of: incomplete TTT. **Or** after apparent cure of kala-azar.		
- complication:	Extensive↓↓ (CMI)-->2ry infections (TB, pneumonia).		
- Diagnosis:	**1. C.P: (endemic area).** **2.organisms demonstration: (amastigotes in macrophages):** **A. film:** (Blood) leishman stain. **B. punctures:** (spleen – liver – L.N - B.M). **C. culture:** N.N.N medium (for scanty organisms). **D. inoculation:** Animal. (for scanty organisms). **3.serological tests:** **A. I.D.T (leishman "Montenegro" test):** - delayed hypersensitivity reaction.(+) after cure. - Ag (promastigotes) (N.N.N. medium). **B. formol - gel test (Aldehyde test):** - serum + 30% formalin (drop) → gel formation → ↑ Globulin (**IgG**) – reversed ratio of albumin/globulin. **C. globulin opacity test:** - Serum + distilled water → opacity formation. **D. antimony test (chopra test):** - Serum + 24% urea stibamine → ring between 2 solutions. **E. IFA, ELISA & CFT** (+ later than IFA). **F. PCR.**		
TTT: - drug:	pentavalent antimony (Na gluconate / pentostam)	**pentamidine**	**Allopurinol**
- dose:	10 mg/Kg (I.M) 1d/1m	4 mg/Kg (I.M) 1d/ ½ m.	20 mg/Kg (orally) 3 d / 15 doses.
- others:		**(Resistant cases)**	
- control :	1.R.H destruction. 2.Vectors control. (insecticide) 3.Patients TTT.		
Epidemiology:	- Endemic in many countries. - More prevalent in ♂ than in ♀.		

Trypanosoma

- parasite:	T. brucei Gambiense	T.rhodesiense	T.Cruzi
- Distribution:	West &central Africa	East Africa.	Central & south America.
- Disease:	Mid African sleeping sickness.	East African sleeping sickness.	chagas' disease.
- host: -D.H:	Man only		
-R.H:	(Goats &cattle)	Wild game animals	Armadillo, dogs, cats & rodents.
vector:	Tsetse **fly** (glossina palpalis).	**fly** (glossina morsitans)	Reduviid bugs (kissing – cone bug)
- Habitat:			**Amastigote** (brain, muscle, thyroid).. **Trypomastigote** (blood "in C & U forms").
infective stage	Metacyclic trypomastigote in fly saliva.		Metacyclic trypomastigote in bug feces.
- mode of infection:	1- Bite of infected tsetse fly. **(Ant. station parasite)** 2- Direct mechanical transmission. 3- Occasionally, by **coitus** & rarely **congenital.**		Contamination of wound or abrasion with infected bug feces.**(post. station parasite)**
pathogenesis:	**1. Acute(1^{st} year):** In blood &lymphatic. **2.chronic(Sleeping sickness stage)** In CNS.	**Similar to Gambian , but differ in:** 1- more acute. 2- More numerous in blood. 3- Little lymphadenopathy. 4- Early CNS invasion.	- Penetrate the skin histiocyte → (amastigote) → (trypomastiogote) - some invade new cell. - Some →to regional lymph node. - Soon→blood→all body.
- C.P :	**A- trypanosomal chance:** -local inflamm.nodule(bite site). **B- parasitaemia: (blood)** (Fever, headache, malaise, anorexia, weakness, skin rash). (anemia , leukocytosis & ↑ Monocytes, lymphocytes). **C- winterbottom's sign**: القفا ☺ Post. Cervical L.N enlargement. **D- meningio encephalitis:** - Due to:perivascular infiltration W chronic inflammatory Cells → ischemia & hemorrhage. - (headache, mental dullness, apathy) -motor disturbance: (convulsion ,hemiplegia , paraplegia & urine & feces incontinence) →sleep → comatose → dies	1- **Chancre,** fever, early **CNS** within 4 week → death. 2- Generalizing **lymph node** enlargement. **3- Spleen & liver** may be enlarged.	**1.acute stage:** children, I.P=1-2 week. **1-chagoma.** **2-L.N** (hard, tender, contain Amastigote). **3-Romana's sign:** unilateral edema of eye Lids with conjunctivitis. **4-hepatosplenomegally & lymphadenitis.** **5-fever &muscle pain** (organism in blood) **--terminate by :** Death / recovery / chronic stage. **.2. Chronic stage:** adult **1-cardiac enlargement & H.F.** **2-liver& spleen**enlargement & congested. **3- megaeosophagus**(dysphagia)& **Mega colon** (constipation). **4- meningio-encephalitis& Thyroid involvement.**
- Diagnosis:	**1. C.P: (endemic area).** **2.organisms demonstration (trypanosomes):** **A. film:** (Blood, L.N, B.M) early "leishman stain". **B. punctures:** (CSF) & ↑ protein, leucocyte & IgM. **C. culture:** N.N.N medium (for scanty organisms). **D. inoculation:** Animal. (For scanty organisms). **3.serological tests:** - ↑ **IgM** in serum. **– IFA, ELISA & IHA.**		**1.organisms demonstration**: **A. thick film:** (Blood) - +ve in acute stage- **B. punctures:** (spleen & I.N). **C. culture:** N.N.N medium...... **3.serological tests:** **A- cruzin test(IDT)** **B- ELISA, IHA, IFA & CFT.** **3-xenodiagnosis test:** winged bug allowed to suck blood from patient→examine it's gut (10 days).
- control :	1. R.H destruction. 2. Vector control (insecticide) 3. Patients TTT. 4. Bush (breeding places) clearing. 5.personal prophylaxis: (screening , bed net , protective clothes & insect repellents) ** Wild game animals' elimination.		

TTT	Early infection - # B.B.B -		Late infection - B.B.B -		T.Cruzi	
- drug:	**suramin**	**pentamidine**	**malersoprol**	**tryparsamide**	Nifurtimox (act intra cellular) **(amastigotes)**	Primaquine (in blood) **(trypanosomes)**
- dose:	1gm/10ml (I.V) distilled water 1Weekly/5W	4 mg/Kg (I.M) 1d/ 10 d.	3 mg/Kg (I.V) 1d/ 3 d. * repeated "2W"	1-3 gm (I.V) 1w/ 10 W.	15 mg/kg orally 1d/3m	15 mg/kg 1d/ 14 days
- others:		**Chemo-prophylaxis.**	Drug of choice W neurological involvement.		3-Allopurinol.	

plasmodium

- parasite:	p.malariae	p.falciparum	p.vivax	p.oval
- Distribution:	Subtropical zone	Trobical zone	Temperate zone	West Africa, south America &Asia
- Disease:	quartan malaria	malignant malaria	tertian malaria	tertian malaria
- host:	**D.H:** ♀ anophline mosquito **I.H:** man (asexual cycle) -RBCs(erythrocytic) & liver (extraerythrocytic).			
vector:	♀ anophline mosquito.			
- Habitat:	stomach of mosquito (sexual cycle) (sporogony cycle) .			
infective stage	Sporozoites in mosquito saliva.			
- mode of infection:	1. Bite of infected ♀ anopheline mosquito. 2. Blood transfusion - contaminated syringes. 3. congenital infection			
pathogenesis:	- RBCs invasion*→ **heamozoin pigment** (in expense of hemoglobin). Engulfed by endothelial cells → deposited in organs rich W RES cells (spleen& liver) → enlargement. - p.faciparum develops **knops on surface of RBCs** → adhere together& with capillary wall→(emboli-blockage)→ heamorhage , ischeamia , edema & necrosis.			
- C.P :	**1- Prodromal:** (influenza like "headache, muscle pain, anorexia &vomiting). **2- Malaria paroxysm:** 3 stages (cold stage-hot stage- sweeting stage)* **3- anemia:** due to: destruction of RBCs. **4- enlargement of liver & spleen:** due to: hyperplasia of RES cells. ***1-in p.malariae: (nephrotic syndrome)***: due to deposition of immune complex on glomerular wall. ***2-in p.falciparum: (pernicious or malignant malaria). (ABPCD)(ST)*** A. **Cerebral malaria**: as fever, headache, convulsion, convulsion & coma. B. **Dysenteric malaria**: pain, vomiting, bleeding (may related to ischemia). C. **Pulmonary edema**: due to fluid retention or anoxia affecting pulmonary Circulation, cardiac decomposition. D. **Algid malaria**: rapid hypotension, vascular collapse → shock (due to B,C) E. **Trobical splenomegaly syndrome :** with high serum IgM. F. **Syncopal form**: sudden death from H.F or coronary blockage. G. **Black water fever:** black urine due to heamolysis. - (anemia, jaundice, heamoglobinuria). - Auto-Ab to RBCs or circulating Ag(repeated attack).			
- Diagnosis:	**1. C.P: (fever & symptoms).** **1.organisms demonstration:** **A. film: (blood) (thick)** detect parasite **(thin)** to identify species. - (ring& trophozoite &schizont &gametocyte) seen in all type except p.falciparum only ring & gametocytes are seen. **3- Ascoli's method:** in chronic cases with no parasite in blood. Adrenaline injected S.C→ contraction of spleen & parasite appear in blood. **4- Therapeutic test:** antimalarial drugs for 3 days (symptoms disappearance). **5.serological tests:** **A. Ag parasite detection.** **B. IHAT , IFAT(long standing & relapsing infection --not acute infection--)**			
- control :	1. Chemoprophylaxis. 2. Mosquito control (insecticide). 3. Patients TTT.			

TTT	A-clinical cure:	
- drug:	chloroquine	Mefloquine (in chloroquine resistance)
- dose:	600mg (orally)--6h→300mg→ 300mg (2^{nd} &3^{rd} days)	1-1.5 gm SOD.
- others:	**B- Radical cure: primaquine:** kill (hyponozoite) in p.vivax & p.ovale. **C- prophylaxis: chloroquine:** (2 week before&6month after) & **pyrimethamine.**	

Babesia

- parasite:	B.divergens	B.microti
- Distribution:	Europe	North America
- age:	splenoctomised	Normal
- Disease:	Babesiosis.	
- host: -D.H:	Hard tick (sexual cycle) & **I.H:** man.	
-R.H:	cattle	rodents
- Habitat:	Inside R.B.Cs (asexual cycle)	
infective stage	Sporozoites in tick saliva.	
- mode of infection:	Blood transfusion	
pathogenesis:	*** opportunistic infection *** RBCs invasion only (no liver invasion).	
- C.P :	**1. Self-limited:** most cases. **2. = malaria , but differs in:** **A. continuous fever.** **B. No relapse.** **C. No response to:** Antimalarial drug. **D. solid immunity** after recovery.	
- Diagnosis:	**- blood film:** (multiple small rings in RBCs) **- PCR**: (babesia DNA)	
TTT: - drug:	Clindamycin	+ quinine
- dose:	600mg	650mg 3daily/1 week
- others:	- exchange blood transfusion → ↓ parasitaemia	
- control :	1. Hard tick control.	

* فريق العمل " مرتب أبجدياً " :- (بلال سيد بلال - عبد الحليم السعيد البنا - محمد أحمد الهندى - محمد أحمد جابر حميدو - محمد السيد على حنفى - محمد عبد الناصر - محمود شاهين - ياسر عبد المقصود الزينى) نسألكم من خالص دعائكم ،،

- Parasite :	*Entamoeba histolytica*	*Balantidium coli*	*Giardia lamblia*	*Trichomonas vaginalis*
- Disease :	Amoebiasis, Amoebic hepatitis, Amoebic dysentery.	Balantidiasis, Balantidial Dysentery.	Giardiasis.	Trichomonad vaginitis (persistant vaginitis) & Trichomoniasis.
- Class :	Rhizopoda.	Ciliates.	Flagellates (intestinal).	Flagellates (uro-genital).
- Habitat :	Large intestine (Wall & Lumen) Of sigmoido-rectal colon & caecum.	Large intestine (Lumen, Mucosa & Sub Mucosa) esp. caecum & terminal Ileum.	Small intestine Esp. duodenum. (Migrate up to Common bile duct & gall bladder). (Children).	♀: Vagina, Cervix, Bladder & Urethra. ♂: Prostate, -------- Bladder & Urethra.
- Diagnostic stage:	Cyst or Trophozoite (rapid motility) Stage.	Cyst or trophozoite Stage.	Cyst or trophozoite Stage.	Trophozoites only. no cyst
- infective stage :	Mature cyst with 4 nuclei (Quadrinucleate Cyst)	Mature cyst.	Mature cyst.	
- Mode of infection :	Swallowing mature cyst through: 1-Autoinfection (Faeco-oral route). 2-Water&vegetables contaminated W infected feces. 3- Direct trans. By cyst carrier. 4- Food contaminated <u>W</u> **<u>Flies</u>**& hands of infected food handlers.	Swallowing mature cyst through: 1, 2 & 4 + 3- Direct contact with pigs. 4- No Flies.	Swallowing mature cyst through: 1-Autoinfection → Faeco-oral route(hand to mouth infection) 2-Water& food contaminated <u>W</u> sewage, **<u>flies</u>** or food handlers.	
- Pathogenesis:	**<u>Trophozoites Invade</u>** Intestinal wall (histolytic enz.)→ **<u>1. Mucosa:</u>** necrosis. **<u>2. Sub-mucosa:</u>** Typical Flask-shaped ulcers -large No-→ Intercommunicating sub-mucosal sinus passages. **<u>3. Bacterial Invasion</u>** from intestine → Leucocytic infiltration& tissue destruction. **<u>*Trophozoites</u>** →radicals of portal V. & colonize. **<u>*Amoebic liver abscess</u>**: may develop from: enlargement of one of the colonies,Mostly **<u>(Rt. Lobe)</u>** (Single / multiple). **<u>*pulmonary aembiasis:</u>** - Invasion from liver to lung Through diaphragm. - From intestine → Blood → 1ry pulmonary Abscess.	*Cysts → hyaluronidase enz. → Mucosal invasion → 2ry Bacterial infection → Flask-shaped ulcers with symptoms of dysentery. * No Bl. Invasion→ No extra-intestinal lesions.	**<u>** Predisposing factors :</u>** 1. Achlorhydria.(↓ Hcl). 2. Hypogammaglobulinaemia. 3. ↓ Secretory IgA in small bowels. 4. Blood group A (children). **<u>** The disease shows :-</u>** **<u>- Asymptomatic case:</u>** lives in duodenum and feeds on mucus. **<u>- Symptomatic:</u>** trophozoite attach to duodenum wall → hyperemia, inflammation, atrophy of villi & extensive cellular infilteration of lamina propria , So they interfere W digestion &absorption of food.	**<u>** Predisposing factors :</u>** Bacterial flora & physiological statues of vagina including: PH when lowered to (5-7) - Normal PH of vagina(3.8-4.4)- ** Normal acidity is maintained by the action of **<u>Doderlein bacillus</u>** **<u>on</u>** the glycogen (**<u>in</u>** vaginal mucosa →lactic acid)
- clinical picture: - complication: (P.118)	**<u>1. Asymptomatic (cyst passers):</u>** Most common. **<u>2. Symptomatic :</u>** **<u>1.Intestinal amoebiasis:</u>** **A. <u>Acute (Dysenteric)</u>:** Severe dysentery W numerous small stool + Blood & mucous + Abdominal pain, tenesmus, flatulence, Chronic Fatigue. **B. <u>Chronic (Non Dys.)</u>:** Recurrent attacks of dys. With: mild GIT Disturbances & constipations in-between. - Localized abdominal Tenderness. **<u>2.Extraintestinal amoebiasis:</u>** **A. <u>Hepatic Amoebiasis:</u>** **<u>* Am. Hepatitis:</u>** Liver tenderness & enlargement, fever, weight loss, + cough (pneumonitis). **<u>*Am. liver abscess:</u>** (single / multiple) "multiplication" Liver tenderness & enlargement, fever occurs daily in the **afternoon**, profuse **sweating**, hepatic pain may be referred to **Rt. / Lt. shoulder.** **B. <u>Pulmonary Amoebiasis</u>**: chills, fever, leukocytosis & pulmonary Consolidation.	*Infection may be **asymptomatic.** **<u>*In chronic stages may show:</u>** Intermittent diarrhea alternating with constipation, Tender colon & cachexia.	1. **<u>Diarrhea:</u>** usually chronic, offensive, fatty & white pale. (stool without blood / pus) 2. **<u>Abdominal distention</u>**, flatulence, nausea & anorexia. 3. **<u>Steatorrhea</u>** & mal-absorption syndrome. 4. Fat soluble **<u>vitamins</u>** deficiencies. 5. **<u>Cholangitis</u>** & cholecystitis(if reaches the biliary passage).	**<u>**Female :::::></u>** **<u>-Vaginal wall shows :</u>** Hyperemia, tender & frothy covering surface, seropurulent yellowish discharge. **<u>- complains of:</u>** 1. 50% (asymptomatic). 2. Itching, burning sensation, dyspareunia, Frequency of urination & **<u>dysuria</u>**. 3. Profuse irritating milky yellowish vaginal **<u>discharge.</u>** **<u>** Male :::::></u>** - Usually **<u>asymptomatic.</u>** - Or may suffer from **<u>urethritis</u>** & **<u>prostatitis</u>** with dysuria & discharge.
- Diagnosis :	**<u>I-Intestinal:</u>** **<u>A. Clinical picture:</u>** of acute & chronic stage. **<u>B. Lab. :</u>** - trophozoite (acute dysentery – liquid stool) -Cyst (Chronic – Carrier). **<u>1. Direct method</u>** : **A. Unstained smear:** fresh stools (blood –stained mucus) (moving trophozoite & cyst). **B. Iodine stained smear:** (morphology). **C. Concentration method:** "zink sulphate centrifugal floatation method" (cysts) **D. Stool culture.** **E. Endoscopy:** - by proctoscopy / sigmoidoscoby. – When stool (-ve) to reveal organism. - Normal mucosa between ulcers differentiates amoebic from bacillary dysentery. **<u>2. Indirect method</u>** : **A. Radiography:** (x- ray With barium meal) (filling defects in colon). **B. coproantigens (E.histolytica Ag) Detection:** in stool using monoclonal Ab & immune assay. **C. Serological:** (ELISA, IHA, FAT):(-ve in cyst passers) suggesting that: - Tissue invasion is required for Ab production. **<u>II- Liver Abscess :</u>** **<u>1. Radiological Finding:</u>** (Rt dome of diaphragm "elevated – immobile") – (pleural effusion). **<u>2. Ultrasound:</u>** most valuable method. **<u>3. Aspiration</u>** :(thick reddish brown fluid " anchovy sauce") – odourless – (trophozoite). **<u>4. Immunodiagnosis.</u>**	**<u>* Stool examination : Identification of :</u>** - Trophozoites (diarrhoeic stool) - cyst (formed stool)	**<u>1. Stool examination : Identification of :</u>** - Trophozoites (diarrhoeic stool). - Cyst (formed stool). 2. Examination of **<u>duodenal content</u>** (trophozoite). **<u>3. coproantigens of Giardias Detection</u>**: in stool.	**<u>* Detection of trophozoites:</u>** In vaginal discharge or prostatic sec. by microscopic exam. - If fails, **<u>culturing on:</u>** modified Biamond's medium. **<u>* Detection of T.vaginalis Ag:</u>** in discharge using ELISA, FAT or PCR.
- TTT:	**-- combination of amoebicides is necessary --** **<u>I- Tissue amoebicide</u>**: **1. Imidazoles:** -Metronidazole(flagyl): 750mg 3daily/10d; - Tinidazole.: 2gm 1daily/3d **2.Chloroquine phosphate.**: 1gm (1d/2d)→½gm 1d/4w **3. Emitine hydrochloride.**: 1mg/kg/day(I.M) / 5 d **<u>II- Luminal amoebicide</u>**: **1. Diloxanide furoate.**: 500 mg 3d/10d **2. Antibiotics:(symbiosis W intestinal flora)** Tetracyclines.: 250 mg 4d/5d; Paromomycine.: 500 mg 4d/5-10d **<u>***TTT of intestinal amoebiasis:</u>** **<u>I- Amoebic dys. :</u>** Metronidazole/Tinidazole → Tetracyclines/Diloxanide furoate. **<u>II- Asymptomatic carrier:</u>** --Diloxanide furoate. **<u>***TTT of liver Abscess:</u>** * Metronidazole → chloroquine phosphate/ Diloxanide furoate. * Aspiration (if – large abscess & very ill patient).	**Metronidazole**: 250 mg 3 d / 7 d **Tinidazole**: 2 gm as a single dose.	**Metronidazole**: 250 mg 3 d / 5 d **Tinidazole**: 2 gm as a single dose. **Albendazole**: 400 mg 1d/5d	**1. Systemic TTT :** - Metronidazole (flagyl): ((Not in 1st trimaster of pregnancy)). - 250 mg 3d/ 10d. **2. Local TTT:** **<u>A. douche</u>** (Lactic acid). **<u>B. vaginal inserts</u>** (Flagyl - Vioform). **** TTT of both partners simultaneously is necessary ****
- Prevention & control:	1. Feces-human- (Sanitary disposal – as fertilizer "store for long time"). 2. Vegetables-raw- (Cleaning of raw By continuous water) 3. Water supplies (Purification). 4. Food (Protect from contamination) 5. Flies Control. 6. Patient TTT. 7. Carrier (Remove from the food handler occupations).	= + 2. Care in handling pigs	As *E. histolytica.*	1. Patient TTT. 2. symptomatic case (Diagnosis & TTT) 3. condoms use.

* فريق العمل " مرتب أبجدياً " :- (بلال سيد بلال - عبد الحليم السعيد البنا - محمد أحمد الهندى - محمد أحمد جابر حميدو - محمد السيد على حنفى - محمد عبد الناصر - محمود شاهين - ياسر عبد المقصود الزينى) نسألكم من خالص دعائكم ،،